



# ONSITE NON-POTABLE WATER REUSE PRACTICE GUIDE 2.0

Research Needs Statement | OCTOBER 2023



WILLIAM J WORTHEN FOUNDATION

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## What is the WRPG?

The award winning “Onsite Non-Potable Water Reuse Practice Guide” (WRPG) was developed by the William Worthen Foundation, and published in 2018. This project was completed with funding and in-kind support from Google, AIA-CA, Charles Pankow Foundation, Magnusson Klemencic Associates, City of Santa Monica, and the Water Environment & Reuse Foundation. Since publication, it has been downloaded over 5,000 times, received Certificates of Recognition from the State of California legislative bodies, instigated action by the State of California to develop statewide standards for onsite non-potable water treatment and reuse systems, and been added to the United Nations Global Compact CEO Water Mandate library.

## Approach

The WRPG v2.0 will offer updated practice knowledge that building designers, contractors, owners, operators, and those that regulate this application need to understand, based on lessons from the field since the original Guide’s publication. This update will provide these professionals with information needed to properly scope and integrate onsite water reuse systems into the built environment. While not intended as a design guide, WRPG v2.0 will educate readers about concepts related to water budgets, evaluating project delivery alternatives, and convening a qualified project team. It will empower design professionals to think differently about water and communicate how and why all water is a design resource.

The Guide will cover the updated regulatory landscape related to water reuse. Health-based water quality standards for the onsite treatment and reuse of non-potable water are being widely accepted, and yet

are poorly understood. Training has been identified as a critical component for successful, widespread adoption of such regulations, which can help streamline implementation of more On-Site Water Reuse (ONWS). This guide will provide an overview of this regulatory framework and help navigate readers through the permitting process if ONWS are not readily permissible in the jurisdictions where you practice.

Finally, the WRPG v2.0 will present some of the technical considerations associated with treatment technology selection including cost considerations and operational requirements. It will also present a diversity of real world examples of water reuse systems in use and on the market today. These case studies will cover projects implemented since the release of the original WRPG.



## Process and Outcomes

The goal of this guide is to make the design, value and benefits of cost-effective integration of ONWS a core competency for professionals working in the built environment. A working group of subject matter and industry experts will be convened to develop the content for this guide, related info-graphics, and to validate the technical resources referenced for water use and reuse. The WRPG v2.0 will highlight how a collaborative and integrative design process can support the success of sustainable water systems including communicating the value of ONWS and

addressing climate impacts such as defining resilience opportunities and the energy / carbon embodied in water systems.

The guide will address the sustainability benefits of ONWS, scope definition, design, system specification, permitting, and operation of onsite water reuse technologies including rainwater, stormwater, and gray and black water systems for residential, commercial and institutional uses. The WRPG v2.0 will be produced as an e-book and made publicly available for download.

PRIMARY AUDIENCE	SECONDARY AUDIENCE
Sole practitioners and small to mid-sized firms of architects and design professionals practicing in the U.S. with a specific focus on drought-stricken states such as California, Nevada, and Arizona.	Engineers, building owners and property managers, code officials, contractors, students and professors of architecture schools, policy makers and residents of drought-stricken states.

## Water Reuse Practice Guide Working Group Goal

**10-15 Industry, Policy, and Practice Experts, with potential representation and/or peer review from:**

- » AIA Committee on the Environment (COTE)
- » ASHRAE, ACSE, IAPMO GPMCS and/or IgCC
- » CA Governor’s Office of Planning and Research (OPR)
- » CA Department of Water Resources
- » Central Valley Regional Water Quality Control Board
- » City of San Diego Public Utilities
- » East Bay Municipal Utility District
- » Fixture Manufacturers including Delta and Kohler
- » USGBC Water Technical Advisory Group (TAG)
- » WaterSense, U.S. Environmental Protection Agency



# Partners & Staffing

## WORKING GROUP

### 1. Tier 1 Authors:

- a. Provide subject matter expertise, narrative, and graphic content for the development of the Guide. Provide perspective on making water use and reuse an understood design opportunity that is applicable at any scale of design for any project type from single family residential to multifamily, commercial, institutional, and mixed use buildings.
- b. Review and comment on current policies, research, and educational resources related to the design of on-site water reuse systems for new construction and renovation of commercial, mixed use, multifamily, and district scale private developments. Review tools, available and emerging technologies, and lessons learned from other countries that have experienced similar climatic conditions.
- c. Provide comments and recommendations for the establishment of water reuse policies for local and state adoption and contribute to the development of a database of tools, technologies, and design resources. Assist with the development of a water resource calculator that can be used to calculate the potential water savings and capacity for on-site water reuse of non-potable, alternative water sources.

### 2. Tier 2 Authors:

- a. Support Tier 1 authors with editing, authorship of specific subject areas assigned by the Tier 1 authors, review drafts, provide perspective, and recommend resources.

### 3. Peer Reviewers:

- a. Review drafts and provide perspective, and recommend resources.

## KEY PAID STAFF

- » Project Manager
  - » Copy Editor
  - » Graphic Designer
  - » Tier 1 Authors
  - » Tier 2 Authors
  - » Peer Reviewers
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## POTENTIAL PROJECT PARTNERS

- » San Francisco Public Utilities Commission
  - » Water Energy Innovations
  - » Pacific Institute
  - » International Living Future Institute
  - » Epic Cleantec
  - » Aquacell & Phoenix Water Recycling
  - » USGBC California
  - » Sherwood Institute
  - » AIA California Council
  - » Google
  - » NextEra
  - » Natural Systems Utilities
  - » UC Berkeley Water Center
  - » EAWAG researcher
  - » UCD Water Center
  - » Stanford
  - » Emory University
  - » Innovatreat
  - » Austin Water
  - » Texas Water Trade
  - » NYC DEP
  - » Water Environment & Reuse Foundation
  - » US Water Alliance
  - » WaterReuse
  - » Seattle PUC
  - » CWEA
  - » Sac State Operator Training Program
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## CATEGORIES OF STAKEHOLDERS

- » Operators
- » Technology Providers
- » Design Professionals
- » Utilities
- » Owners
- » Developers



## Funding

The William Worthen Foundation, a 501(c)3 public benefit corporation based in San Francisco, seeks \$360,000 in funding to research, write, and disseminate The Onsite Non-Potable Water Reuse Practice Guide v2.0: A Survival Manual for a One Water Future.

Funding for this project will be used in part to compensate industry professionals and leading subject matter experts for their participation in the Water Reuse Design Guide Working Group (\$5,000 to

\$10,000 per Tier 1 author, \$2,000 to \$3,000 per Tier 2 author, and \$1,000 per Peer reviewer). Stipends are proposed in order to create more equitable access to project participation. Compensating key content developers for their time will ensure dedicated, focused and continuous participation from a wide range of subject matter experts in both the public and private sectors. The project will start with a full day kickoff meeting, with travel expenses and food covered by project funds.

## Previous Fiscal Sponsors



## Schedule

It is anticipated that development of v2.0 of the Guide will take approximately 18 months. Sample schedule below:

PHASE I Oct 2023 – Nov 2023	PHASE II Dec 2023 – Feb 2024	PHASE III Mar 2024 – July 2024	PHASE IV July 2024 – Dec 2024	PHASE V Jan 2025 – May 2025
<b>Key Tasks:</b>	<b>Key Tasks:</b>	<b>Key Tasks:</b>	<b>Key Tasks:</b>	<b>Key Tasks:</b>
Submit research Need Statement (on-going)	Receive Foundation Funding (on-going)	WG Kick-Off Meeting, in SF (Spring)	Guide Peer Review Period (30 Days)	Graphic Designer: E-Book Publication
Receive Preliminary Foundation Review (on-going)	Retain Key Staff & Confirm Schedule	Issue Working Draft and Table of Contents	Compile and Issue PR Comments	Issue E-Book 'beta' Test of Web Page
Finalize Project Phasing & Tasks	Formally Invite Working Group (WG)	Field Research & WG Support	Complete E-Book Style Guide	QC & Fact Check E-Book

## Contacts

### VP of the Board / Project Lead

Kyle Pickett  
kyle@worthenfoundation.org

### President of the Board

Steve Guttman  
sguttman@gb-eng.com

